

Amendments to the Claims:

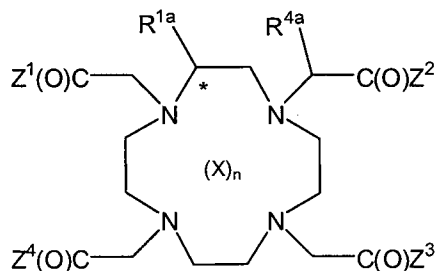
This listing of claims will replace all prior versions, and listings of claims in the application.

Listing of Claims:

1 **1.** (Previously presented) A method of treating a subject with cancer by administration of a
2 macrocyclic metal chelate, said method comprising the steps of:
3 (a) administering to said subject an antibody comprising an antigen recognition domain that
4 recognizes said macrocyclic metal chelate,
5 wherein said antibody comprises:
6 a reactive site within the structure of the antibody that is not present in the wildtype of
7 said antibody, wherein said reactive site is in a position within said antigen
8 recognition domain and
9 a targeting moiety that binds specifically to a cancer cell by binding with a member
10 selected from a cell surface receptor and cell surface antigen, thereby forming a
11 cell-antibody complex;
12 wherein said macrocyclic metal chelate is 1,4,7,10-tetraazacyclododecane-N,N',N'',N'''-
13 tetraacetic acid (DOTA), and comprises a reactive functional group with a reactivity
14 complementary to said antibody reactive site; and
15 (b) administering to said subject said macrocyclic metal chelate, thereby forming a covalent bond
16 between said reactive site and said reactive functional group.

1 **2. – 5.** (Canceled).

1 **6.** (Currently amended) The method of claim 1, wherein said ~~substituted or unsubstituted DOTA~~
2 macrocyclic metal chelate comprises 1,4,7,10-tetraazacyclododecane-N,N',N'',N'''-tetraacetic acid
3 (DOTA) and has the formula:
4



wherein

R^{1a} and R^{4a} are members independently selected from H, substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl, substituted or unsubstituted aryl and linker moieties;

X is a member selected from a lanthanide ion, an actinide ion, an alkaline earth metal ion, and a group IIIb transition metal ion;

Z^1 , Z^2 , Z^3 and Z^4 are members independently selected from OR^1 and NR^1R^2

in which

R^1 and R^2 are members independently selected from H, substituted or unsubstituted alkyl and substituted or unsubstituted heteroalkyl;

n is a member selected from 0 and 1.

7. (Cancelled).

8. (Previously presented) The method of claim 6, wherein the carbon atom marked * is of S configuration.

9. (Cancelled)

10. (Previously presented) The method of claim 1, wherein said targeting moiety binds specifically to said cell surface antigen.

11. (Original) The method of claim 1, wherein the targeting moiety is covalently attached to said antibody.

12. (Previously presented) The method of claim 10, wherein the targeting moiety is a second antibody.

13. (Original) The method of claim 11, wherein the targeting moiety specifically binds to a protein on a cancer cell.

8 . T is said targeting moiety.

1 **25.** (Canceled).

1 **26.** (Previously presented) The method of claim **24**, wherein said targeting moiety is a second
2 antibody that binds specifically to a cell surface antigen.

1 **27.** (Previously presented) The method according to claim **24** wherein said antibody is administered
2 to said subject as a pharmaceutical composition comprising said antibody and a pharmaceutically
3 acceptable carrier.

1 **28.** (Canceled)

1 **29.** (Cancelled).

1 **30.** (Previously presented) The method according to claim **1**, wherein said cell is a cancer /*-cell.

1 **31** (Canceled)

2 **32.** (Cancelled).

1 **33.** (Previously presented) The method according to claim **6**, wherein

2 R^{1a} and R^{4a} are H;
3 Z^1 , Z^2 , Z^3 and Z^4 are OH;
4 and n is 1.

1 **34.** (Previously presented) The method according to claim **33**, wherein said targeting moiety is a
2 second antibody that binds specifically to a cell surface antigen.

1 **35.** (Previously presented) The method according to claim **34**, wherein said targeting moiety is anti-
2 CEA.

1 **36.** (Previously presented) The method according to claim **33**, wherein said targeting moiety is anti-
2 CEA.

1 **37.** (Currently amended) The method according to claim **1**, wherein said antibody has a first
2 sequence having at least 95 ~~percent homology~~ % sequence identity with SEQ ID NO. 1; and wherein said
3 antibody has a second sequence having at least 95 ~~percent homology~~ % sequence identity with SEQ ID
4 NO. 5.

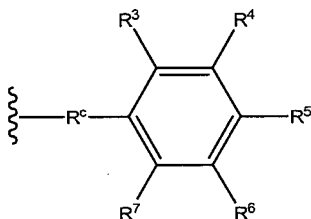
38. (Previously presented) The method according to claim 1, wherein said reactive site comprises sulfur.

39. (Cancelled) The method according to claim 1, wherein said antibody is purified.

40. (New) The method according to claim 6, wherein R^{1a} is a member independently selected from substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl, substituted or unsubstituted aryl and linker moieties.

41. (New) The method according to claim 6, wherein R^{4a} is a member independently selected from substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl, substituted or unsubstituted aryl and linker moieties.

42. (New) The method according to claim 6, wherein said DOTA further comprises an arylalkyl moiety having a structure according to the formula:



wherein

R^c is an unsubstituted unbranched alkyl linker;

R^3 , R^4 , R^5 , R^6 and R^7 are members independently selected from H, halogen, NO_2 , CN, X^1R^8 , NR^9R^{10} , and $\text{C}(X^2)R^{11}$,

wherein

X^1 is a member selected from O, NH, and S;

X^2 is a member selected from O, S, and NH;

R^8 and R^9 are members independently selected from H, substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl, substituted or unsubstituted heteroalkyl and $\text{C}(Z^3)R^{12}$

wherein

Z^3 is a member selected from O, S and NH;

R^{12} is a member selected from substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl and OR^{13}

wherein

19 R^{13} is a member selected from substituted or unsubstituted alkyl,
20 substituted or unsubstituted heteroalkyl, substituted or
21 unsubstituted aryl, and substituted or unsubstituted heteroaryl;
22 R^{10} is a member selected from H, substituted or unsubstituted alkyl, substituted or
23 unsubstituted heteroalkyl, and OH, and
24 R^9 and R^{10} taken together are optionally ($=C=S$);
25 R^{11} is a member selected from H, halogen, substituted or unsubstituted alkyl, substituted
26 or unsubstituted heteroalkyl, OR^{14} , and $NR^{15}R^{16}$,
27 wherein
28 R^{14} is a member selected from H, substituted or unsubstituted alkyl, substituted
29 or unsubstituted heteroalkyl, and $C(O)R^{17}$,
30 wherein
31 R^{17} is a member selected from substituted or unsubstituted alkyl, and
32 substituted or unsubstituted heteroalkyl; and
33 R^{15} and R^{16} are members independently selected from H, substituted or
34 unsubstituted alkyl, and substituted or unsubstituted heteroalkyl.